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## (54) IMPROVEMENTS RELATING TO EDGE CONNECTOR PLUGS

(71) We, FERRANTI LIMITED, a British Company, of Hollinwood, Lancashire, England, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to edge connector plugs of the type used to interconnect a printed circuit board and an edge connector socket.

The usual method of making electrical connections to a printed circuit board involves forming contacts on an edge of the board, and inserting the edge into an edge connector socket. Several problems arise when this is done. The contacts on the edge of the board require a surface which is mechanically strong and which will not tarnish to cause bad contacts, and electroplated gold is frequently used. This requires to be deposited by a separate process, and has to be protected during operations intended to solder components to the board. An additional problem arises from the fact that many boards are now made from a base material reinforced with woven glass fibre. This is a very abrasive material, and may easily wear through the contacts of a normal edge connector.

To overcome these problems, it is known to use an edge connector plug between the board and the socket. Such a plug comprises a moulded body of insulating material having one side shaped like an edge connector socket the other side formed into a blade, like the edge of a printed circuit board. Resilient conductive contact members pass through the body from the blade, where they lie on each side of the blade and, with the blade, may be plugged into a socket, to the other side of the body where they may make contact with a printed circuit board. The contact members are usually soldered to the circuit board, thus obviating the need for contact areas of any special material. The blade of the plug is flexible, and bending of

it results also in bending of the contact members. This may stress the contact members beyond their elastic limit and cause permanent deformation which could in turn damage the socket.

It is an object of the invention to provide an edge connector plug in which the risk of permanent deformation of the contact members is substantially reduced.

According to the present invention there is provided an edge connector plug comprising an insulating body having a housing with an open end for receiving an edge of a printed circuit board, a blade of insulating material integral with the housing and extending from the other end thereof for insertion into an edge-connector socket, and also extending internally of the housing towards the open end thereof, and a plurality of conductive contact members extending along the blade through the housing and up to and beyond the open end of the housing, each contact member and the body being so shaped that the contact member is pivotally supported for bending at the point where it passes into the housing and is also supported at a support point on the extension of the blade towards the open end of the housing.

The invention will now be described with reference to the accompanying drawings, in which:—

Figure 1 is a drawing illustrating the use of an edge connector plug;

Figure 2 illustrates a known type of plug;

Figure 3 shows the unstressed shape of a contact member of the plug of Figure 2;

Figure 4 illustrates a first embodiment according to the invention;

Figure 5 shows the unstressed shape of a contact member of the plug of Figure 4; and

Figure 6 illustrates a second embodiment according to the invention.

Referring now to Figure 1, the edge connector plug comprises a body 10 of electrically insulating material. Basically the body is in two parts formed integral with one

4. A connector as claimed in any one of claims 1 to 3 in which each contact member carries a projection operable to retain the contact member in position in the plug.
- 5 5. An edge connector plug substantially
- as herein described with reference to Figures 4, 5 and 6 of the accompanying drawings.
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